

CLAIMS

1. A substantially pure fibroblast growth factor homologous factor (FHF) polypeptide.
2. The polypeptide of claim 1, wherein the polypeptide:
 - a. is about 225-250 amino acids in length;
 - b. lacks an amino terminal signal sequence; and
 - c. contains a nuclear localization signal.
3. The polypeptide of claim 1, wherein the polypeptide comprises a segment of at least five consecutive amino acids that are conserved in the amino acid sequences of FHF-1 (SEQ ID NO:1), FHF-2 (SEQ ID NO:2), FHF-3 (SEQ ID NO:3), and FHF-4 (SEQ ID NO:4).
4. The polypeptide of claim 3, wherein the segment comprises at least five amino acids of the sequence of SEQ ID NO:22.
5. The polypeptide of claim 3, wherein the segment comprises at least five amino acids of the sequence of SEQ ID NO:24.
6. The polypeptide of claim 1, wherein the polypeptide is FHF-4.
7. The polypeptide of claim 1, wherein the polypeptide comprises the amino acid sequence of Figure 8 (SEQ ID NO:4).
8. An isolated nucleic acid encoding the FHF polypeptide of claim 1.

9. The nucleic acid of claim 8, wherein the sequence of the nucleic acid comprises the nucleotide sequence of Figure 8 (SEQ ID NO:21).
10. The nucleic acid of claim 8, wherein the sequence of the nucleic acid is selected from the group consisting of:
 - a. the nucleotide sequence of Figure 8 (SEQ ID NO:21), where T can also be U;
 - b. a nucleic acid sequence that hybridizes to the complement of the nucleotide sequence of Figure 8 (SEQ ID NO:21); and
 - c. a fragment of a. or b. that comprises at least 15 nucleotides and hybridizes to the complement of the nucleotide sequence of Figure 8 (SEQ ID NO:21).
11. A nucleic acid that hybridizes to the nucleic acid of claim 8.
12. A nucleic acid that hybridizes to the nucleic acid of claim 10.
13. The nucleic acid of claim 8, wherein the nucleic acid is mammalian.
14. The nucleic acid of claim 13, wherein the nucleic acid is human.
15. An expression vector containing the nucleic acid of claim 8.
16. The vector of claim 15, wherein the vector is a plasmid.
17. The vector of claim 15, wherein the vector is a virus.

18. A cell stably transformed with the vector of claim 15.
19. An antibody that binds to the FHF polypeptide of claim 1.
20. The antibody of claim 19, wherein the antibody is monoclonal.
21. A method of detecting a cell proliferative disorder associated with expression of the FHF polypeptide of claim 1, the method comprising the steps of:
 - a. contacting a specimen from a subject having or suspected of having the disorder with a reagent that detects expression of the FHF polypeptide, and
 - b. detecting binding of the reagent to the specimen.
22. The method of claim 21, wherein the cell is a brain cell.
23. The method of claim 21, wherein the reagent is an antibody.
24. The method of claim 21, wherein the reagent is a nucleic acid.
25. The method of claim 24, wherein the nucleic acid hybridizes to the nucleic acid of claim 8.
26. The method of claim 24, wherein the nucleic acid hybridizes to the complement of the nucleic acid of claim 8.
27. The method of claim 21, wherein the detecting is carried out *in vivo*.
28. The method of claim 21, wherein the detecting is carried out *in vitro*.

29. The method of claim 21, wherein the reagent comprises a detectable label.
30. A method of treating a cell proliferative disorder associated with expression of the FHF polypeptide of claim 1, the method comprising administering to a subject having or suspected of having the disorder a reagent that suppresses the activity of the FHF polypeptide.
31. The method of claim 30, wherein the reagent is an anti-FHF antibody.
32. The method of claim 30, wherein the reagent is a nucleic acid that hybridizes to the nucleic acid of claim 8.
33. The method of claim 30, wherein the cell is a brain cell.
34. The method of claim 30, wherein the reagent is introduced into the cell using a carrier.
35. The method of claim 34, wherein the carrier is a vector.
36. A method of identifying a nucleic acid encoding an FHF polypeptide, the method comprising probing a sample containing a nucleic acid encoding an FHF polypeptide with an FHF-specific nucleic acid probe.

37. The method of claim 36, wherein the FHF-specific nucleic acid probe hybridizes to:

- a. a nucleic acid that encodes seven consecutive amino acids, at least four of which are conserved in the amino acid sequences of FHF-1 (SEQ ID NO:1), FHF-2 (SEQ ID NO:2), FHF-3 (SEQ ID NO:3), and FHF-4 (SEQ ID NO:4), or
- b. the complementary sequence thereto.